

# DOE's Biomass Super ESPC Program

presented to  
DER – CHP for Federal Facilities

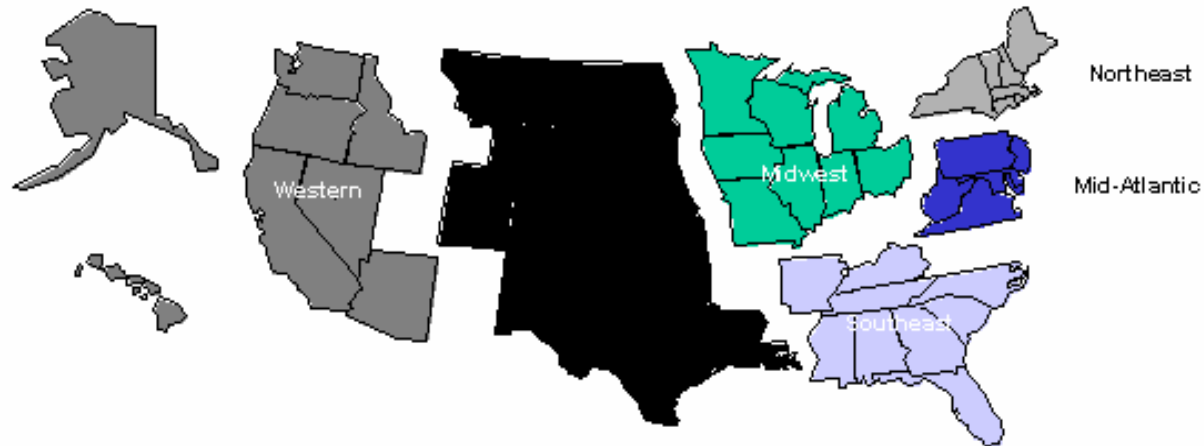
Newport Beach, CA May 14, 2002

Christopher Abbuehl – DOE Philadelphia Regional Office



# Types of DOE Super ESPC's

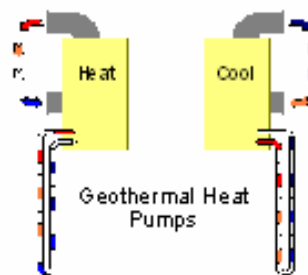
## Super ESPC Regions



## Technology-Specific Super ESPC



Solar and  
Photovoltaics



Geothermal Heat  
Pumps



Biomass



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# BAMF Contractors

## ESCO's Awarded IDIQ Contracts

- Constellation Energy Source
- DTE Biomass Energy, Inc.
- Energy Systems Group
- Exelon Services Federal Group
- Trigen Development Corporation

Contract & technical support by NETL



# BAMF Resources

Biomass fuels include: dedicated energy crops and trees, agricultural food and feed crop residues, aquatic plants, wood and wood residues, animal wastes, and other waste materials.

Alternate methane fuels include landfill methane, wastewater treatment digester gas and coalbed methane.

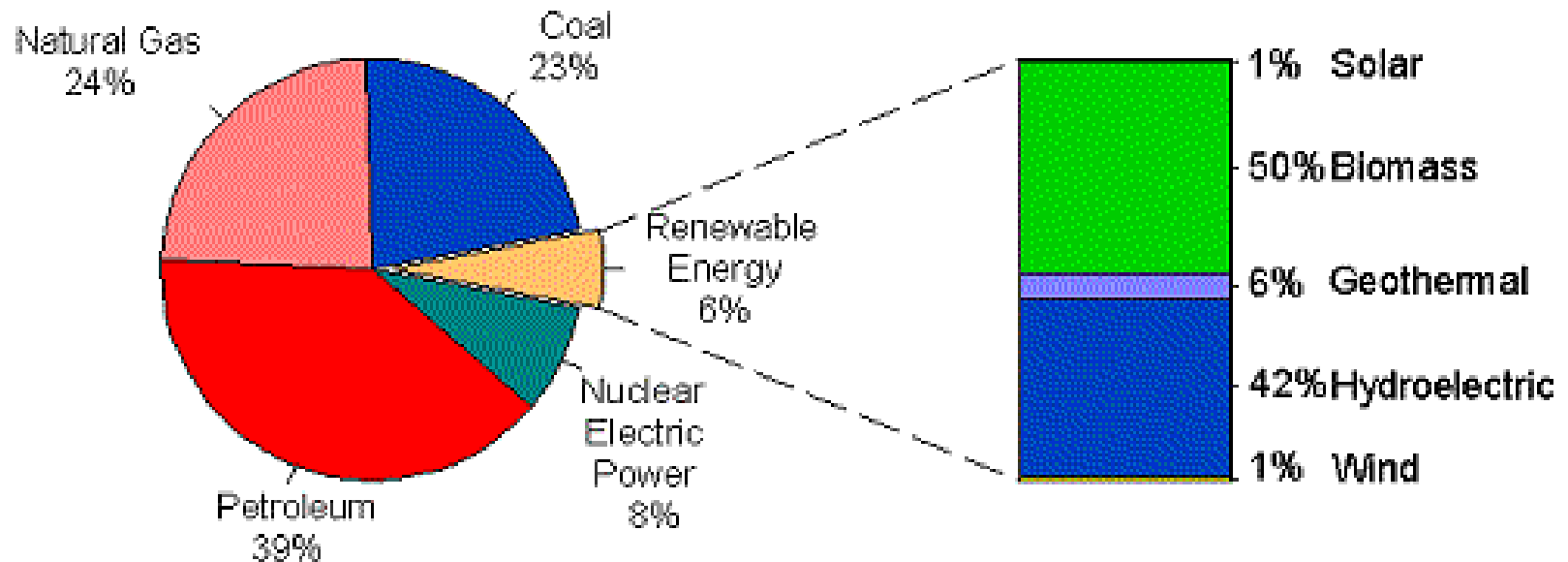


# National Energy Production

## Energy Information Agency 2001 Report

Total = 96.935 Quadrillion Btu

Total = 5.668 Quadrillion Btu



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# BAMF and DER/CHP

## Technical

- ❖ Involve a BAMF Resource – fuel source oriented (not conventional energy savings measures)
- ❖ DER/CHP Technologies – fuel cells, micro-turbines, reciprocating engines, boilers/generators
- ❖ Mini-utility – independence from grid



# BAMF and DER/CHP

## Contractual

- ❖ Fuel transported to federal facility – fuel supply agreements, right of way issues.
- ❖ Involve Selling a commodity to agency
- ❖ Selling excess power to grid



# BAMF Example Projects

## Industry Profile

- ❖ Installed - 7,800 MW
- ❖ Locations – 350

## Applications

- ❖ Co-firing
- ❖ CHP
- ❖ Space heating - drying

## Biomass



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# BAMF Project Examples

## Industry Profile

- ❖ Current projects – 330
- ❖ Electric output – 520 MW

## Applications

- ❖ CHP
- ❖ Electric or heat only
- ❖ High Btu & vehicle fuel

## Landfill Gas



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# BAMF Technologies

## Wastewater Treatment Digester Gas

### Industry Profile

- ❖ Potential Sites – 1,741 w/ over 3M Gal/day flow
- ❖ Customary Uses – heat and power



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# BAMF Technologies

## Industry Profile

- ❖ Coalbed – 17 projects selling 43 bcf/yr
- ❖ Coal Mines captured 14 bcf in 1990  
36 bcf in 2000
- ❖ Uses – heat, power, and sale to gas grid

## Coalbed Methane Gas



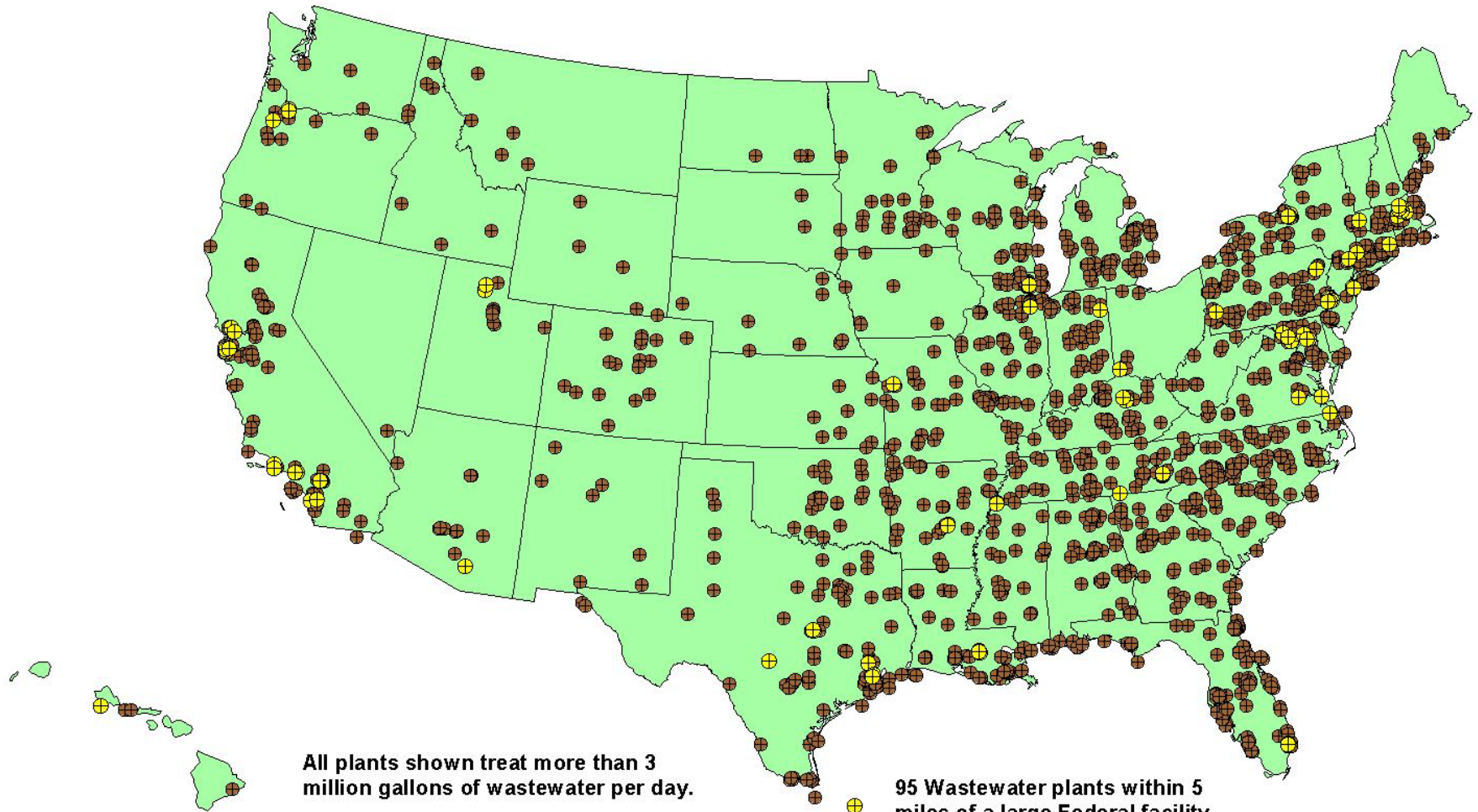
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## Location of Large Wastewater Treatment Plants

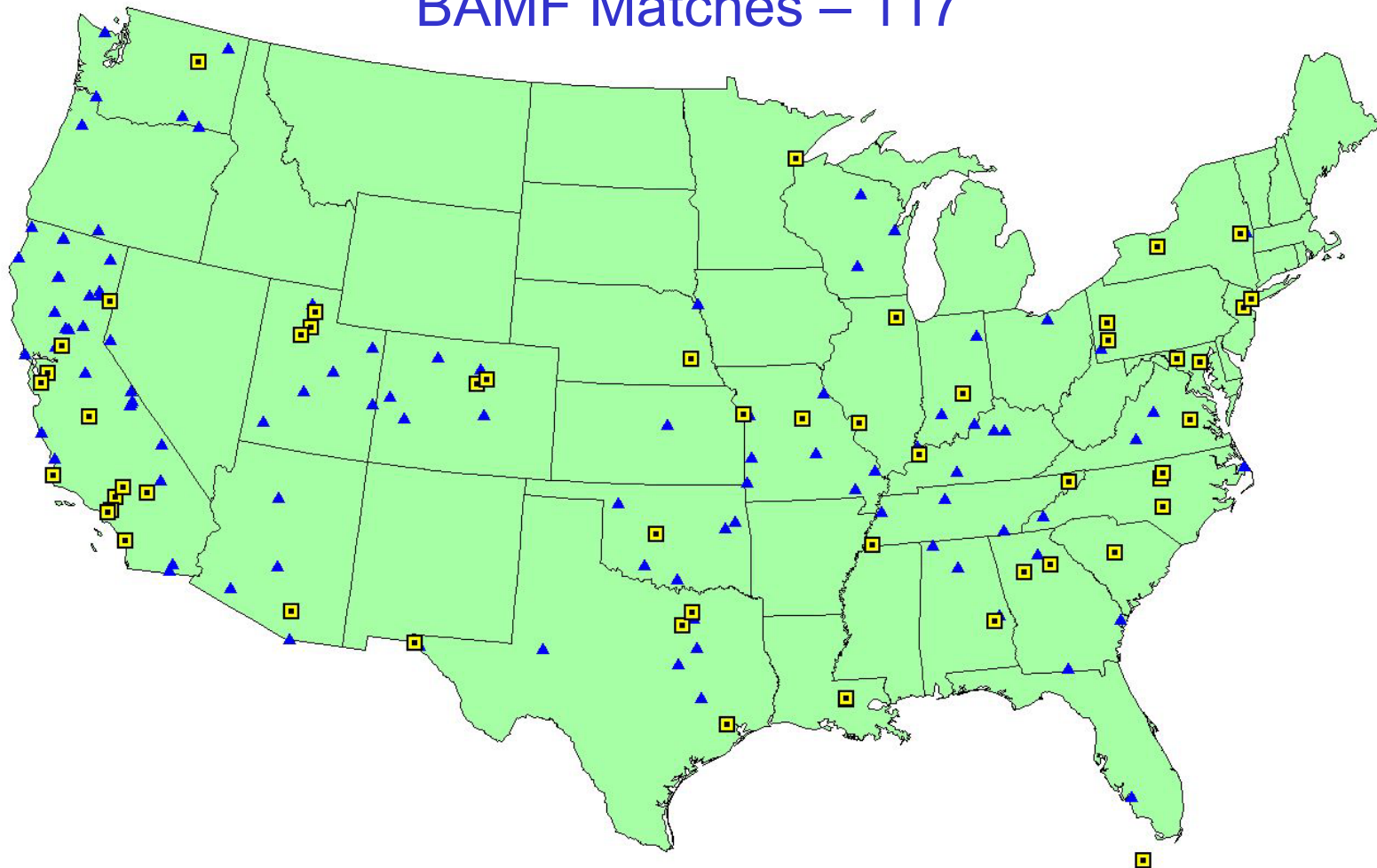
BAMF Matches – 87





## Location of Possible Landfill Gas Projects

BAMF Matches – 117

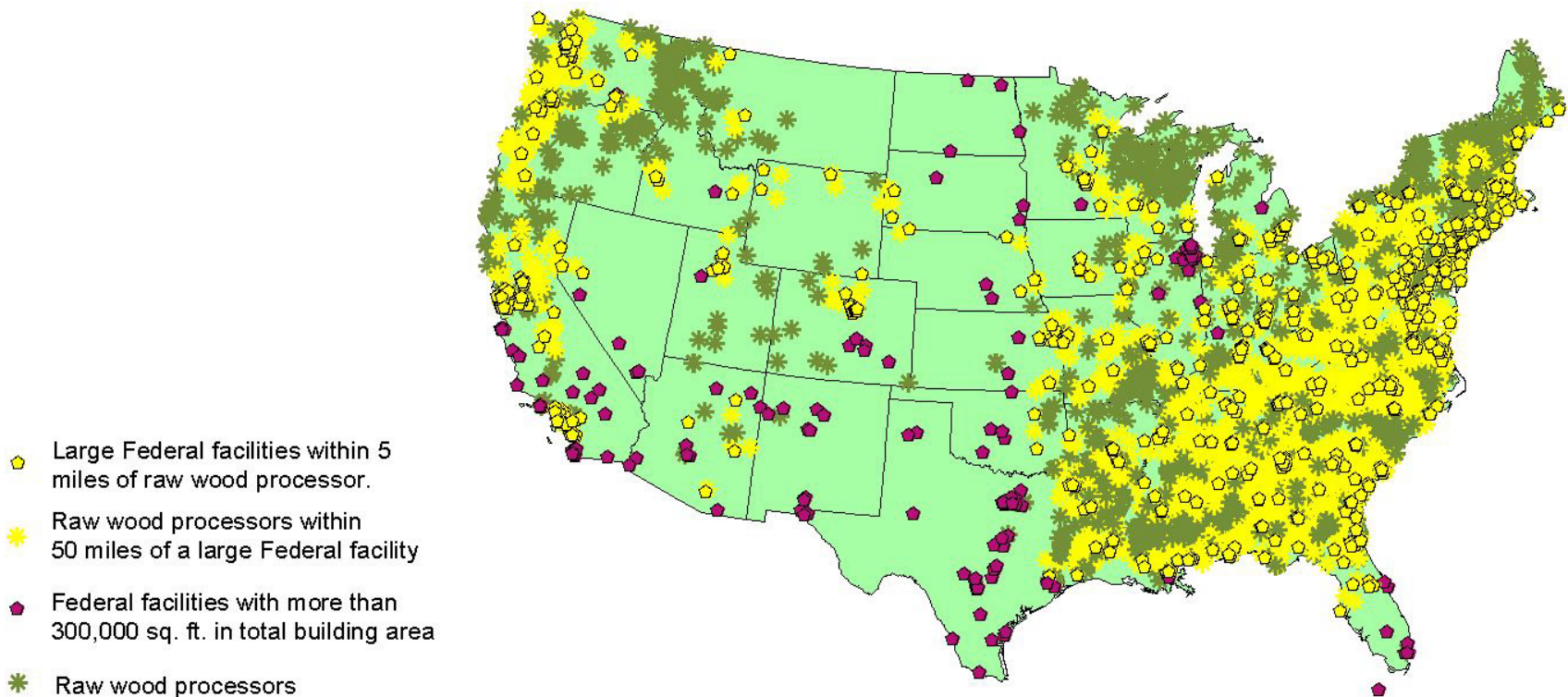
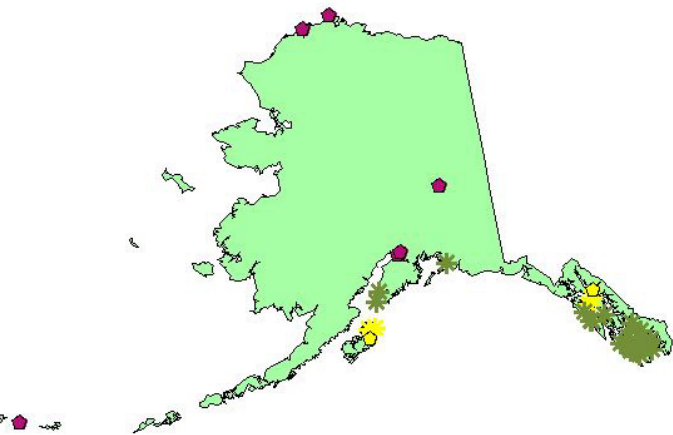


- 58 Landfills without LFG projects within 5 miles of a large Federal facility
- ▲ 216 Landfills (total) without active LFG projects

Data on 279 landfills derived from EPA  
Landfill Methane Outreach Program

## Proximity of Large Federal Facilities to Raw Wood Processors

BAMF Matches - 751



813 of 1015 large Federal facilities are located within 50 miles of 2296 raw wood processors

# Stakeholders

## Resource Supply

- ❖ Landfill Owners
- ❖ Waste Water Treatment Plants
- ❖ Woodwaste – lumber mills  
furniture makers
- ❖ Agriculture – crop waste  
animal waste



# Stakeholders

Work with one of five ESCO's

## Engineering & Construction

Subcontract:

Feasibility study

Construction

Design

Engineering

O&M



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# Stakeholders

## Manufacturers & Vendors

- Equipment
- O&M



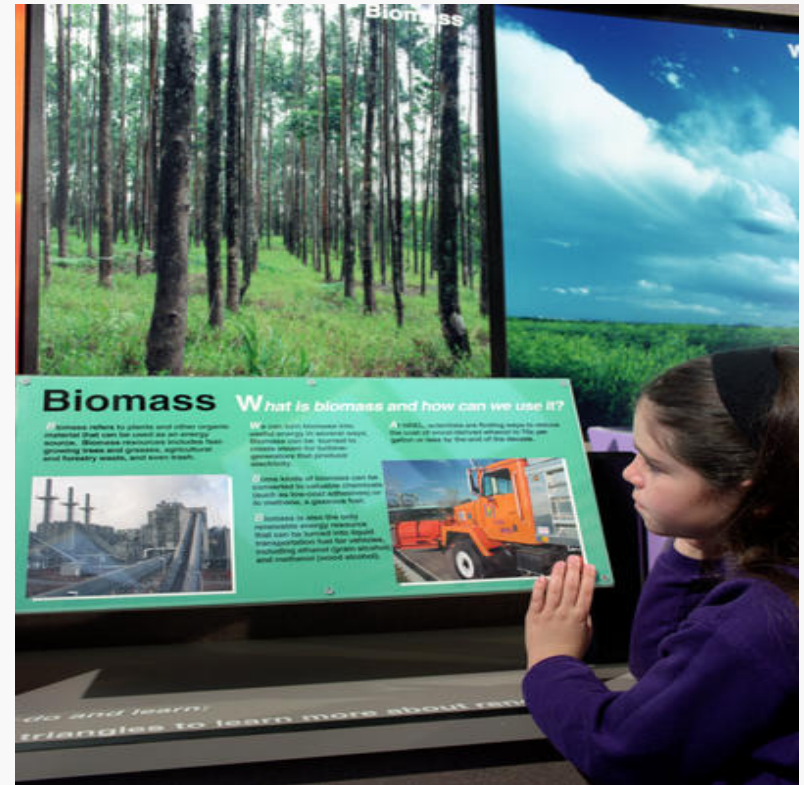
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# Summary

- BAMF projects meet federal facility DG needs
- OMB Scorecard
- Wide range of resources
- ESCO Financed



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